

NOTES

A new subspecies of *Argynnis nokomis* from the Sacramento Mountains of New Mexico (Nymphalidae)

The most vexing question in New Mexico butterfly lore long was, "Did the Sacramento Mts. ever support the Nokomis Fritillary?" At Paul Grey's instigation, I first started searching for colonies in 1963. The next 44 years produced nothing. I still believed that colonies had once existed at Bent, Otero Co., and at Ft. Stanton, Lincoln Co., but I had only utter frustration to show for it. Eventually, I reasoned where any museum specimens would most likely be, and had the AMNH collection searched accordingly. *Eureka*—two male *Argynnis nokomis* from Bent, Otero Co. This success inspired John Rawlins to search the Carnegie. Result: more specimens, including two of the magnificently colored dark yellow-green females (Holland, 2008).

Within the current concept of *A. nokomis* ssp., the Sacramento Mts. population is distinctive. This case deals with a most likely extinct, high-profile organism that may come to be called by an English name in town meetings. I would prefer that name be easily translated into Latin, with the result being near its actual Latin name. "The Tularosa Fritillary" seemed reasonable in this context. My use of *Argynnis* follows the recent phylogenetic placement by Simonsen *et al.* (2006).

Argynnis nokomis tularosa R. Holland, new subspecies

Diagnosis: The general shape of all markings, black and silver resemble typical *A. n. nokomis*. Two known female specimens lack the fulvus spot on DHW costa, DHW with reduced eyespots on the PM band, silvered spots on disc reduced, DFW and DHW with reduced black scaling along the veins.

Holotype: Female, Mescalero, Tularosa River, Otero County, New Mexico, ca. 7000', Aug. 13, 1931, leg. W. Huber, CMNH collection, ex. Philadelphia Academy of Sciences Collection.

Paratypes: 2 males, Bent, Otero County, New Mexico, ca. 6000', Aug. 12, AMNH collection, ex Paul Grey coll., ex. Paul Ehrlich coll. Year is not specified, but Paul Ehrlich was born in 1932, and Paul Grey donated his collection to the AMNH in 1948. 1 female, data as per holotype.

Identification: The key below will distinguish *A. n. tularosa* from all other subspecies based on females characters and provide my diagnosis. Males are harder to separate.

Etymology: The name is feminine, as that of the nearest town and oldest European settlement in the Tularosa Valley or Tularosa Basin. Tularosa itself is not a Spanish root, but is Nahuatl (Aztec), meaning "cattail" (Julyan, 1996). One is tempted to speculate it has the same etymology as the English word "toolies."

Habitat: The past and present habitats are described in detail by Holland (2008).

Comments: The locality where the specimens are from give encouragement to the possibility *A. n. tularosa* is not extinct. All known specimens were taken on the Mescalero Apache Indian Reservation. The Mescaleros were born xenophobic and live in alpine meadows an hour outside El Paso which has done little to make them trust dem city slicker Texan strangers. The Mescaleros

Key to the subspecies of *Argynnis nokomis*.

- | | | |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| 1. | Sexually dimorphic | 2 |
| 1a | Not so | <i>wenona</i> (dos Passos & Grey) |
| 2. | Dorsally yellow green in the lighter wing portions | 3 |
| 2a | These areas very blue, discal cell of VFW black and silver | <i>coerulescens</i> (W. Holland) |
| 3. | DHW discal cell yellowish, silver spots large, dorsally the eyespots in the PM band reduced, fulvus spot on costa of DHW absent | <i>apacheana</i> (Skinner) |
| 3a | Not so | 4 |
| 4. | Very black wings, terminal regions of both wings, both surfaces, almost solid black. DHW wanting a fulvous spot, VHW silvering of disc reduced | <i>nitocris</i> (W. H. Edwards) |
| 4a | Not so | 5 |
| 5. | The typical <i>nokomis</i> cluster | |
| 5a | DHW with fulvus spot on costa about 80%. DHW with large eyespots in p.m. band, silvered spots in disc large, DFW and VFW with heavy black scaling along veins. occurs in few large colonies, fore wing > 41 mm, fulvous scaling not always present in DFW yellow-green areas, yellow-green does not invade DFW cell | Sangre de Cristo typical <i>nokomis</i> |
| 5b | DHW with fulvus spot on costa nearly always, DHW with large eyespots in the p. m. band, silvered spots in disc large, DFW and VFW with heavy black scaling along the veins, occurs in a myriad of tiny colonies, fore wing > 40 mm, noticeable fulvus scaling in DFW yellow-green areas, yellow-green may invade DFW cell Chuska Mts., Navajo Res. | <i>nigrocaerulea</i> (W. & T. Cockerell) |
| 5c | Two known specimens lack fulvus spot on DHW costa, DHW with reduced eyespots on the p.m. band, silvered spots on disc reduced, DFW and DHW with reduced black scaling along the veins; not seen in 70 years and feared extinct, wingspread closer to typical <i>nokomis</i> than <i>nigrocaerulea</i> , Sacramento Mts., Mescalero Res. | <i>Speyeria nokomis tularosa</i> |



Figure 1. The Sacramento Mountains *Argynnis nokomis tularosa* population. Top two rows, males, Bent, Otero County, New Mexico, ca. 6000', Aug. 12, AMNH collection, ex Paul Grey coll., ex Paul Ehrlich coll. Year is not specified, but Paul Ehrlich was born in 1932, and Paul Grey donated his collection to the AMNH in 1948. Bottom two rows, females, Mescalero, Tularosa River, Otero County, New Mexico, ca. 7000', Aug. 13, 1931, leg. W. Huber, CMNH collection, ex Philadelphia Academy of Sciences Collection. The specimen in the third row is designated the female holotype. Of the two known females, it is the only one with both antennae intact.

patrol every inch of road like they were providing the Coliseum with virgins; merely stopping is forbidden. Permits to collect, survey, or just watch the wildlife are very nearly unobtainable: they don't want you spotting anything endangered, the existence of which could be cause for limiting the absolute control the tribe enjoys on its land. The endemic *Euphydryas anicia cloudercrofti* Ferris and R Holland, is known right up to the reservation line, but there is not one report from on the reservation anywhere in the public domain. The only person I ever knew to negotiate successfully to collect on the Mescalero Reservation posed *au natural* for a tribal art class in exchange.

ACKNOWLEDGEMENTS

My sincerest thanks to Jocelyn Gill of the Canadian National Museum for the magnificent photo work that can protect an irreplaceable national asset from pointless handling. All specimens of *Argynnis nokomis* from Otero Co. in either the AMNH or the

Carnegie are paratypes, the holotype in the latter institution.

LITERATURE CITED

- DOS PASSOS, C. F. & L. P. GREY. 1947. Systematic catalog of *Speyeria* (Lepidoptera, Nymphalidae) with designations of types and fixations of type localities. Amer. Mus. Nat. Hist. Novitates 1297: 1-30.
- HOLLAND, R. 2008. The holy grail of New Mexico Lepidoptera: Sacramento Mountains *Speyeria nokomis* (W. H. Edwards) (Nymphalidae). J. Lepid. Soc. 62(3): 171-173.
- JULYAN, R. 1996. The place names of New Mexico. Albuquerque.
- SIMONSEN, T. J., N. WAHLBERG, A. V. Z. BROWER & R. DE JONG. 2006. Morphology, molecules and Fritillaries: approaching a stable phylogeny for Argynniini (Lepidoptera: Nymphalidae). Insect Systematics and Evolution 37:405-418.

RICHARD HOLLAND, 1625 Roma NE, Albuquerque, NM 87106

Use of *Hippuris*, an emergent aquatic plant, as a larval host by the buckeye, *Junonia coenia*, in Northern California

Recent advances in DNA-sequence-based phylogeny have radically altered botanists' concepts of the relationships within the old family Scrophulariaceae and between the now-disaggregated components of that family and others previously classified in a variety of ways (Olmstead *et al.*, 2001; Kadereit *in* Kubitzki & Kadereit, 2004). In addition to DNA evidence, the distribution of characteristic secondary phytochemicals affords a partially-independent indication of plant relationships. In that vein, host-plant choices by oligophagous insects may

suggest underlying chemical, and thus potentially phylogenetic, affinities among the taxa involved. The chemical basis for host selection in various Melitaeini (Nymphalidae) is the presence of the bitter compounds called iridoid glycosides (Bowers & Puttick, 1986; Gardner & Sternitz, 1988). Shapiro and Hertfelder (2009) recently reported the iridoid-selecting variable checkerspot, *Euphydryas chalcedona*, feeding spontaneously, repeatedly and successfully on the exotic garden shrub butterfly bush, *Buddleja davidii*, historically placed in the Loganiaceae or its own family Buddleiaceae but now incorporated into Scrophulariaceae.

The common buckeye, *Junonia coenia* is also a Nymphalid but not a Melitacine, and its host range in California embraces Scrophulariaceae, the very

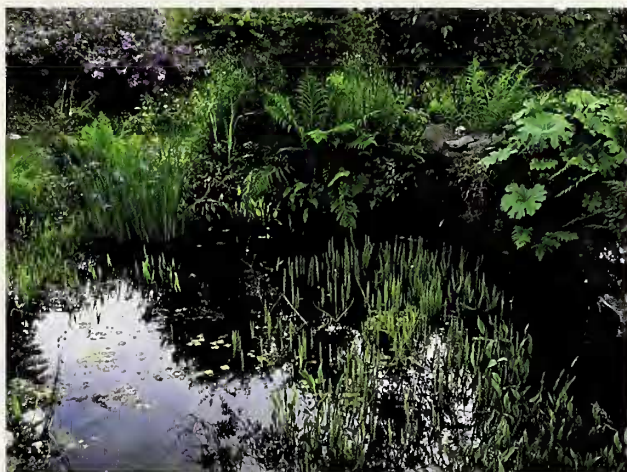


Figure 1. The Biggs garden pond. Emergent stand of mare's tail at right.



Figure 2. Two buckeye larvae, *Junonia coenia*, feeding on mare's tail *in situ*.